

AMENDMENTS TO THE CLAIMS

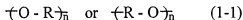
This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): An ionic liquid type functional material comprising an aromatic compound which has a fluorine-containing ether chain and is represented by the formula (1):



wherein -D- is a fluoroether unit represented by the formula (1-1):



in which R is at least one selected from divalent fluorine-containing alkylene groups having 1 to 5 carbon atoms in which at least one of hydrogen atoms is replaced by fluorine atom; n is an integer of from 1 to 20, and when m is not less than 2, two or more of D may be the same or different;

Ra is a monovalent organic group which has 1 to 20 carbon atoms and does not contain said D, and when m is not less than 2, two or more of Ra may be the same or different;

m is an integer of from 1 to 4;

Ry is a mono-, di-, tri- or tetra-valent organic group having 2 to 30 carbon atoms which has at least one selected from basic functional groups Y^1 and/or salts Y^2 of the basic functional groups an amino group and/or a salt thereof and contains an aromatic ring structure, provided that a unit of -O-O- is not contained in said formulae (1) and (1-1).

2. (original): The ionic liquid type functional material of Claim 1, wherein in said formula (1), -O-R- in -D- has at least one kind of fluoroether unit selected from the group consisting of $-(OCFZ^1CF_2)-$, $-(OCF_2CF_2CF_2)-$, $-(OCH_2CF_2CF_2)-$, $-(OCFZ^2)-$, $-(OCZ^3)_2-$, $-(CFZ^1CF_2O)-$, $-(CF_2CF_2CF_2O)-$, $-(CH_2CF_2CF_2O)-$, $-(CFZ^2O)-$ and $-(CZ^3_2O)-$, wherein Z^1 and Z^2 are the same or different and each is H, F or CF_3 ; Z^3 is CF_3 .

3. (previously presented): The ionic liquid type functional material of Claim 1, wherein R_a is selected from fluorine-containing alkyl groups R_x having 1 to 20 carbon atoms.

4. (currently amended): The ionic liquid type functional material of Claim 1, wherein R_a is a monovalent organic group $R_{y'}$ having 2 to 20 carbon atoms which has at least one selected from the basic functional groups Y^1 and/or the salts Y^2 of the basic functional groups and contains an aromatic ring structure.

5. (currently amended): The ionic liquid type functional material of ~~Claim 1~~ Claim 4, wherein the basic functional group or the salt of the basic functional group contained in said ~~$R_{y'}$~~ $R_{y'}$ is at least one kind selected from amines, imines, enamines, ketimines, azines and salts thereof.

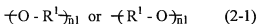
6. (original): An ionic liquid type functional material comprising a fluorine-containing polymer represented by the formula (M-1):



wherein the structural unit M1 is at least one selected from structural units derived from ethylenic monomers having, in a side chain thereof, a moiety represented by the formula (2):



in which $-D^1-$ is a fluoroether unit represented by the formula (2-1):

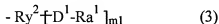


wherein R^1 is at least one selected from divalent fluorine-containing alkylene groups having 1 to 5 carbon atoms in which at least one of hydrogen atoms is replaced by fluorine atom; $n1$ is an integer of from 1 to 20; Ry^1 is a monovalent organic group having 2 to 30 carbon atoms which has at least one selected from basic functional groups Y^1 and/or salts Y^2 of the basic functional groups and contains an aromatic ring structure, provided that a unit of $-O-O-$ is not contained in the structural unit M1 and the formula (2-1); the structural unit A1 is a structural unit derived from a monomer being copolymerizable with the monomer being capable of providing the structural unit M1, and the structural units M1 and A1 are contained in amounts of from 1 to 100 % by mole and from 0 to 99 % by mole, respectively.

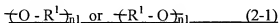
7. (currently amended): An ionic liquid type functional material comprising a fluorine-containing polymer represented by the formula (M-2):



wherein the structural unit M2 is a structural unit derived from an ethylenic monomer having, in its side chain, a moiety represented by the formula (3):



in which $-D^1-$ is a fluoroether unit represented by the formula (2-1):



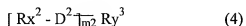
wherein R^1 is at least one selected from divalent fluorine-containing alkylene groups having 1 to 5 carbon atoms in which at least one of hydrogen atoms is replaced by fluorine atom; $n1$ is an

integer of from 1 to 20;in-which Ry^2 is a di-, tri- or tetra-valent organic group having 2 to 30 carbon atoms which has at least one of basic functional groups Y^1 and/or salts Y^2 of the basic functional groups and contains an aromatic ring structure; Ra^1 is a monovalent organic group which has 1 to 20 carbon atoms and does not contain D^1 , and when $m1$ is not less than 2, two or more of Ra^1 may be the same or different; $m1$ is an integer of from 1 to 3; ~~D^1 is selected from the same units as defined in the formula (2) of Claim 6,~~ and when $m1$ is not less than 2, two or more of D^1 may be the same or different, provided that a unit of -O-O- is not contained in the structural unit M2 and the formulae (2-1); the structural unit A2 is a structural unit derived from a monomer being copolymerizable with the monomer being capable of providing the structural unit M2, and the structural units M2 and A2 are contained in amounts of from 1 to 100 % by mole and from 0 to 99 % by mole, respectively.

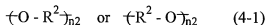
8. (original): The ionic liquid type functional material of Claim 7, wherein Ra^1 is selected from fluorine-containing alkyl groups Rx^1 having 1 to 20 carbon atoms.

9. (previously presented): The ionic liquid type functional material of Claim 6, wherein the basic functional group Y^1 or the salt Y^2 of the basic functional group contained in said Ry^1 is at least one kind selected from amines, imines, enamines, ketimines, azines and salts thereof.

10. (withdrawn): An aromatic compound which has a fluorine-containing ether chain and is represented by the formula (4):

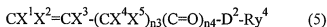


wherein $-D^2-$ is a fluoroether unit represented by the formula (4-1):



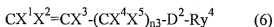
in which R^2 is at least one selected from divalent fluorine-containing alkylene groups having 1 to 5 carbon atoms in which at least one of hydrogen atoms is replaced by fluorine atom; $n2$ is an integer of from 1 to 20, and when $m2$ is not less than 2, two or more of D^2 may be the same or different; Ry^3 is a mono-, di-, tri- or tetra-valent organic group having 2 to 30 carbon atoms which has at least one of amines and/or salts of amines and contains an aromatic ring structure; Rx^2 is a fluorine-containing alkyl group having 1 to 20 carbon atoms, and when $m2$ is not less than 2, two or more of Rx^2 may be the same or different; $m2$ is an integer of from 1 to 4, provided that a unit of $-O-O-$ is not contained in said formulae (4) and (4-1).

11. (withdrawn): An aromatic compound which has a fluorine-containing ether chain and is represented by the formula (5):



wherein X^1 , X^2 , X^4 and X^5 are the same or different and each is hydrogen atom or fluorine atom; X^3 is selected from hydrogen atom, fluorine atom, CH_3 and CF_3 ; $n3$ and $n4$ are the same or different and each is 0 or 1; Ry^4 is a monovalent organic group having 2 to 30 carbon atoms which has at least one of amines and/or salts of amines and contains an aromatic ring structure; D^2 is as defined in the formula (4) of Claim 10.

12. (withdrawn): The aromatic compound of Claim 11 which has a fluorine-containing ether chain and is represented by the formula (6):

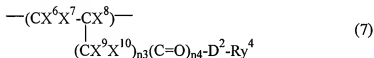


wherein $X^1, X^2, X^3, X^4, X^5, n_3, D^2$ and Ry^4 are as defined in said formula (5).

13. (withdrawn): A fluorine-containing polymer which has a number average molecular weight of from 500 to 1,000,000 and is represented by the formula (M-3):

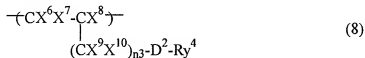


wherein the structural unit M3 is a structural unit represented by the formula (7):



wherein X^6, X^7, X^9 and X^{10} are the same or different and each is hydrogen atom or fluorine atom; X^8 is selected from hydrogen atom, fluorine atom, CH_3 and CF_3 ; n_3 and n_4 are the same or different and each is 0 or 1; D^2 and Ry^4 are as defined in the formula (5) of Claim 11; the structural unit A3 is a structural unit derived from a monomer being copolymerizable with the monomer being capable of providing the structural unit M3, and the structural units M3 and A3 are contained in amounts of from 1 to 100 % by mole and from 0 to 99 % by mole, respectively.

14. (withdrawn): The fluorine-containing polymer of Claim 13, wherein the structural unit M3 is a structural unit represented by the formula (8):



wherein $X^6, X^7, X^8, X^9, X^{10}, n_3, D^2$ and Ry^4 are as defined in the formula (7).

15. (previously presented): The ionic liquid type functional material of Claim 2, wherein R_a is selected from fluorine-containing alkyl groups R_x having 1 to 20 carbon atoms.

16. (currently amended): The ionic liquid type functional material of Claim 2, wherein R_a is a monovalent organic group $R_{y'}$ having 2 to 20 carbon atoms which has at least

one selected from the basic functional groups Y^1 and/or the salts Y^2 of the basic functional groups and contains an aromatic ring structure.

17. (currently amended): The ionic liquid type functional material of ~~Claim 2~~ Claim 16, wherein the basic functional group or the salt of the basic functional group contained in said ~~Ry~~ Ry' is at least one kind selected from amines, imines, enamines, ketimines, azines and salts thereof.

18-19. (canceled).

20. (previously presented): The ionic liquid type functional material of Claim 7, wherein the basic functional group Y^1 or the salt Y^2 of the basic functional group contained in said Ry^2 is at least one kind selected from amines, imines, enamines, ketimines, azines and salts thereof.